CLAIMS

What is claimed is:

1. A method for producing a polymeric sol of a calcium phosphate compound, comprising:

preparing a calcium salt solution, containing calcium ethoxide dissolved in organic acid, and a phosphate solution, containing triethyl phosphite or triethyl phosphate dissolved in the organic acid; and

mixing the calcium salt solution with the phosphate solution to produce a mixed solution, and aging the mixed solution.

2. The method as set forth in claim 1, wherein the organic acid is at least one selected from the group consisting of propionic acid, acetic acid, and formic acid.

3. The method as set forth in claim 1, wherein the calcium ethoxide is dissolved in the organic acid such that a molar concentration of the calcium ethoxide in the organic acid is 0.005 to 1.0.

4. The method as set forth in claim 1, wherein the triethyl phosphite or triethyl phosphate is dissolved in the organic acid such that a molar ratio of calcium to phosphorus in the calcium phosphate compound is 1.0 to 2.0.

5. The method as set forth in claim 4, wherein the calcium phosphate compound is any one selected from the group consisting of hydroxyapatite, tricalcium phosphate, tetracalcium phosphate, and calcium pyrophosphate.

6. The method as set forth in claim 1, wherein the mixed solution is aged at room temperature for a maximum of one week, or at 80℃ for a maximum of ten hours.

7. A method for coating a calcium phosphate ceramic on a metal implant, comprising:

a first step of preparing a calcium salt solution, containing calcium ethoxide dissolved in organic acid, and a phosphate solution, containing triethyl phosphite or triethyl phosphate dissolved in the organic acid;

a second step of mixing the calcium salt solution with the phosphate solution to produce a mixed solution, and aging the mixed solution at room temperature for a maximum of one week or at 80℃ for a maximum of ten hours to produce a polymeric sol of a calcium phosphate compound;

a third step of coating the polymeric sol on a surface of the metal implant;

a fourth step of hydrolyzing a coated layer, including the polymeric sol, on the metal implant;

a fifth step of preheating the hydrolyzed coated layer on the metal implant to burn organics remaining in the

hydrolyzed coated layer;

a sixth step of repeating the first to fifth steps to desirably increase a thickness of the preheated-coated layer; and

a seventh step of sintering the resulting metal implant at 500 to 800℃ under a nitrogen atmosphere.

8. The method as set forth in claim 7, wherein the organic acid is at least one selected from the group consisting of propionic acid, acetic acid, and formic acid.

9. The method as set forth in claim 7, wherein the calcium ethoxide is dissolved in the organic acid such that a molar concentration of the calcium ethoxide in the organic acid is 0.005 to 1.0

10. The method as set forth in claim 7, wherein the triethyl phosphite or triethyl phosphate is dissolved in the organic acid such that a molar ratio of calcium to phosphorus in the calcium phosphate compound is 1.0 to 2.0.

11. The method as set forth in claim 7, wherein the coating of the polymeric sol is conducted through a dipping, a spinning, or a spraying process.

12. The method as set forth in claim 7, wherein the hydrolyzing of the coated layer is conducted at 60 to 100℃.

13. The method as set forth in claim 7, wherein the preheating of the hydrolyzed coated layer is conducted at 300 to 500℃.